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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,657	03/19/2004	Monsong Chen	1V00-003	8026

7590 01/09/2007

GEORGE O. SAILE
28 DAVIS AVENUE
POUGHKEEPSIE, NY 12603

EXAMINER	
MANOSKEY, JOSEPH D	
ART UNIT	PAPER NUMBER
2113	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/804,657	CHEN ET AL.	
	Examiner	Art Unit	
	Joseph D. Manoskey	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,19-21,23-37 and 41-43* is/are rejected.

7)☒ Claim(s) *16-18,22,38-40 and 44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/26/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-15, 19-21, 23-37, and 41-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Mangipudi et al., U.S. Patent App. Pub. 2004/0162901, hereinafter referred to as "Mangipudi".

4. Referring to claim 1, Mangipudi teaches an apparatus that includes a servers that organized into groups referred to a clusters, which are given a priority, on a local area

network, this is interpreted as a hierarchical clustered parallel processing system comprising at least one cluster of computer processing system forming a node of a hierarchical cluster, each cluster of computer processing systems comprising: a plurality of computer systems designated to be members of nodes of said cluster; a physical network connected to allow each computer system of the plurality of computer systems to transfer data between any of the plurality of computer systems (See Fig. 2 and paragraphs 0017, 0018, 0024, and 0037).

Mangipudi also teaches the backend servers are clustered into virtual cluster groups and the servers multicasting on the network to each other, this is interpreted as a virtual multicast bus designate communications between member computer systems (See paragraphs 0021 and 0056). Mangipudi teaches the system having a monitoring processor that monitors workload and availability of servers, this is interpreted as a configuration service apparatus in communication with each of the computer systems to provide each of the plurality of computer systems (See paragraph 0018). Mangipudi teaches routing to the servers via MAC address, this is interpreted as a node identification to identify a node for each member system within said cluster (See paragraph 0039). Mangipudi discloses multicasting packets, this interpreted as a multicast bus address to broadcast communications to said members of said cluster by way of said virtual cluster bus (See paragraph 0056).

Mangipudi teaches assigning priority to the clusters, this is interpreted as a node priority list designating a priority for each node within said cluster (See paragraphs 0015 and 0024). Finally Mangipudi teaches a on e of the hosts being used as a routing host,

this is interpreted as a cluster supervisor processor to provide operational control services for said cluster, said cluster supervising processor being selected of said member computer systems according to the priority from said priority list (See paragraphs 0037 and 0073).

5. Referring to claim 2, Mangipudi discloses the monitoring processor with the router controls access to the servers which includes disks, this interpreted as wherein the configuration service apparatus further provides a disk access list (See paragraphs Fig. 3 and 0017, 0018, and 0019).

6. Referring to claim 3, Mangipudi teaches open connections, disk space, and memory utilization, this is interpreted as wherein disk access list comprises identification of accessible disks, disk mount points, and failure detection locations (See paragraph 0019).

7. Referring to claim 4, Mangipudi discloses total open connections, disk space, response times of back-end servers, this is interpreted as wherein the cluster supervising processor maintains: a cluster topology table detailing connectivity for each node of the cluster and a disk access status for each disk within said cluster; a disk usage table describing current capacity and loading for each disk within said cluster; a node usage table describing a streaming capacity for each node of said cluster and a current loading for each node of said cluster (See paragraph 0019). Mangipudi also

teaches maintaining online/offline status and using MAC addresses of the servers, this is interpreted as a cluster map describing network addresses for each of a plurality of servers in communication with said cluster and listing of nodes within said cluster, network addresses for said nodes, and an operational status of said nodes (See paragraph 0019 and 0039).

8. Referring to claim 5, Mangipudi teaches have separate cluster groups of the overall system, this is interpreted as wherein a group of said member computer systems of said cluster are configured as a sub-cluster, said sub-cluster being a node of said cluster. (See Fig. 3, and paragraph 0021).

9. Referring to claim 6, Mangipudi discloses periodically multicasting packets relating to a heartbeat, this is interpreted as wherein the each cluster of computer processing systems further comprises a fault detection apparatus within each member computer system: to periodically receive a first processor status message from a first adjacent node; to append a second processor status message of a current node to said first processor status message; and to periodically transmit said first and second processor status message to a second adjacent node (See paragraph 0056).

10. Referring to claim 7, Mangipudi teaches the multicasting packets for a heartbeat go the router, this is interpreted as wherein said cluster supervising processor receives

an accumulation of the processor status messages from all nodes of said cluster (See paragraph 0056).

11. Referring to claim 8, Mangipudi teaches the use of a heartbeat a failure is detected, this is interpreted as wherein, if the fault detection apparatus does not receive said first processor status message for a number of periods, said first adjacent node is declared to have failed and a failure declaration is appended to said second processor status message (See paragraph 0056 and 0058).

12. Referring to claim 9, Mangipudi discloses removing failed systems from the configuration, this is interpreted as wherein, upon receipt of said failure declaration, the cluster supervising processor modifies said cluster map to reflect failure of the node (See paragraph 0058).

13. Referring to clam 10, Mangipudi teaches the primary host server sending an ARP signal the secondary to determine a failure of the primary, this interpreted as wherein the cluster supervising processor periodically posts a supervisor notification message on said virtual multicast bus, said supervisor notification message comprises a node identification and a network address for said cluster supervising processor (See paragraph 0042).

14. Referring to claim 11, Mangipudi discloses the primary host server sharing an address with secondary and the secondary assuming the functions of the primary, this is interpreted as wherein the supervisor notification message further comprises the cluster topology and a current cluster map (See paragraph 0041).

15. Referring to claim 12, Mangipudi teaches the secondary server expecting an ARP for two consecutive time intervals and then the secondary assumes the functions of the primary, this is interpreted as wherein, if one node of cluster does not receive said supervisor notification message within a notification time, said node becomes said cluster supervising processor, updates said cluster topology table and said cluster map, transmits a cluster supervising processor update message, and the supervisor notification message (See paragraph 0041 and 0042).

16. Referring to claim 13, Mangipudi teaches the servers sending information via the heartbeat signal such as sites available, server name, and status information. Mangipudi also teaches the monitor dynamically monitoring workload and availability of servers to enable requests to sent to the appropriate servers, requests including video transmissions, this is interpreted as each node of said cluster periodically determines whether each disk to which said node has access is functioning and if any disk is not functioning; the node creates a disk failure message for the disk not functioning for transfer to an adjacent node; wherein said adjacent node transfers said disk failure node to subsequent adjacent nodes until said cluster supervising processor receives

said disk failure message; wherein upon receipt of multiple disk failure messages from multiple nodes for the disk not functioning, the cluster supervising processor declares a disk failure, updates the disk usage table, and reassigns all the transfer of video data files from a failing node to an active node (See paragraphs 0018, 0045 and 0056).

17. Referring to claim 14, Mangipudi discloses dynamically monitoring workload and availability of servers and additional servers being added easily and seamlessly to meet increases in traffic, this is interpreted as wherein a new node joins said cluster by the steps of: listening to said virtual multicast bus for a supervisor notification message from the present cluster supervising processor; posting on said virtual multicast bus a join request message providing a node identification, a network address for said node, and a disk access list for said node; updating by the present cluster supervising processor the cluster map and the cluster topology; and placing a new supervisor notification message upon said virtual multicast bus including said new node (See paragraphs 0018 and 0053).

18. Referring to claim 15, Mangipudi discloses dynamically monitoring workload and availability of servers and additional servers being added easily and seamlessly to meet increases in traffic, this is interpreted as wherein the new node joins said cluster further by the step of: ceasing posting on said virtual multicast bus said join request message (See paragraphs 0018 and 0053).

19. Referring to claim 19, Mangipudi teaches keeping track of availability sending heartbeat which contains server status, this is interpreted as wherein a node leaves a cluster by the steps: posting a leave message on said virtual multicast bus, said leave message containing the node identification and the network address for said node; updating by the cluster supervising processor of the cluster map and the cluster topology; and posting on the virtual multicast bus the supervisor notification message with the updated cluster map and cluster topology (See paragraphs 0019 and 0056).

20. Referring to claim 20, Mangipudi teaches dynamically monitoring workload and availability of servers and determining server status, this is interpreted as wherein the node leaving the cluster ceases posting the leave message upon receipt of the supervisor notification message with the updated cluster map and cluster topology (See paragraphs 0018 and 0056).

21. Referring to claim 21, Mangipudi discloses a secondary server taking over for the primary host router server, this is interpreted as wherein if the node leaving the cluster is the cluster supervising processor, the node of the cluster of the priority list then becomes the cluster supervising processor (See paragraph 0041).

22. Referring to claim 23, Mangipudi teaches an apparatus that includes a servers that organized into groups referred to a clusters, which are given a priority, on a local area network, this is interpreted as a cluster of computer processing systems

comprising: a plurality of computer systems designated to be members of nodes of said cluster; a physical network connected to allow each computer system of the plurality of computer systems to transfer data between any of the plurality of computer systems; (See Fig. 2 and paragraphs 0017, 0018, 0024, and 0037).

Mangipudi also teaches the backend servers are clustered into virtual cluster groups and the servers multicasting on the network to each other, this is interpreted as a virtual multicast bus designate communications between member computer systems (See paragraphs 0021 and 0056). Mangipudi teaches the system having a monitoring processor that monitors workload and availability of servers, this is interpreted as a configuration service apparatus in communication with each of the computer systems to provide each of the plurality of computer systems (See paragraph 0018). Mangipudi teaches routing to the servers via MAC address, this is interpreted as a node identification to identify a node for each member system within said cluster (See paragraph 0039). Mangipudi discloses multicasting packets, this interpreted as a multicast bus address to broadcast communications to said members of said cluster by way of said virtual cluster bus (See paragraph 0056).

Mangipudi teaches assigning priority to the clusters, this is interpreted as a node priority list designating a priority for each node within said cluster (See paragraphs 0015 and 0024). Finally Mangipudi teaches a on e of the hosts being used as a routing host, this is interpreted as a cluster supervisor processor to provide operational control services for said cluster, said cluster supervising processor being selected of said

member computer systems according to the priority from said priority list (See paragraphs 0037 and 0073).

23. Referring to claim 24, Mangipudi discloses the monitoring processor with the router controls access to the servers which includes disks, this interpreted as wherein the configuration service apparatus further provides a disk access list (See paragraphs Fig. 3 and 0017, 0018, and 0019).

24. Referring to claim 25, Mangipudi teaches open connections, disk space, and memory utilization, this is interpreted as wherein disk access list comprises identification of accessible disks, disk mount points, and failure detection locations (See paragraph 0019).

25. Referring to claim 26, Mangipudi discloses total open connections, disk space, response times of back-end servers, this is interpreted as wherein the cluster supervising processor maintains: a cluster topology table detailing connectivity for each node of the cluster and a disk access status for each disk within said cluster; a disk usage table describing current capacity and loading for each disk within said cluster; a node usage table describing a streaming capacity for each node of said cluster and a current loading for each node of said cluster (See paragraph 0019). Mangipudi also teaches maintaining online/offline status and using MAC addresses of the servers, this is interpreted as a cluster map describing network addresses for each of a plurality of

servers in communication with said cluster and listing of nodes within said cluster, network addresses for said nodes, and an operational status of said nodes (See paragraph 0019 and 0039).

26. Referring to claim 27, Mangipudi teaches have separate cluster groups of the overall system, this is interpreted as wherein a group of said member computer systems of said cluster are configured as a sub-cluster, said sub-cluster being a node of said cluster. (See Fig. 3, and paragraph 0021).

27. Referring to claim 28, Mangipudi discloses periodically multicasting packets relating to a heartbeat, this is interpreted as wherein the each cluster of computer processing systems further comprises a fault detection apparatus within each member computer system: to periodically receive a first processor status message from a first adjacent node; to append a second processor status message of a current node to said first processor status message; and to periodically transmit said first and second processor status message to a second adjacent node (See paragraph 0056).

28. Referring to claim 29, Mangipudi teaches the multicasting packets for a heartbeat go the router, this is interpreted as wherein said cluster supervising processor receives an accumulation of the processor status messages from all nodes of said cluster (See paragraph 0056).

29. Referring to claim 30, Mangipudi teaches the use of a heartbeat a failure is detected, this is interpreted as wherein, if the fault detection apparatus does not receive said first processor status message for a number of periods, said first adjacent node is declared to have failed and a failure declaration is appended to said second processor status message (See paragraph 0056 and 0058).

30. Referring to claim 31, Mangipudi discloses removing failed systems from the configuration, this is interpreted as wherein, upon receipt of said failure declaration, the cluster supervising processor modifies said cluster map to reflect failure of the node (See paragraph 0058).

31. Referring to clam 32, Mangipudi teaches the primary host server sending an ARP signal the secondary to determine a failure of the primary, this interpreted as wherein the cluster supervising processor periodically posts a supervisor notification message on said virtual multicast bus, said supervisor notification message comprises a node identification and a network address for said cluster supervising processor (See paragraph 0042).

32. Referring to claim 33, Mangipudi discloses the primary host server sharing an address with secondary and the secondary assuming the functions of the primary, this is interpreted as wherein the supervisor notification message further comprises the cluster topology and a current cluster map (See paragraph 0041).

33. Referring to claim 34, Mangipudi teaches the secondary server expecting an ARP for two consecutive time intervals and then the secondary assumes the functions of the primary, this is interpreted as wherein, if one node of cluster does not receive said supervisor notification message within a notification time, said node becomes said cluster supervising processor, updates said cluster topology table and said cluster map, transmits a cluster supervising processor update message, and the supervisor notification message (See paragraph 0041 and 0042).

34. Referring to claim 35, Mangipudi teaches the servers sending information via the heartbeat signal such as sites available, server name, and status information. Mangipudi also teaches the monitor dynamically monitoring workload and availability of servers to enable requests to sent to the appropriate servers, requests including video transmissions, this is interpreted as each node of said cluster periodically determines whether each disk to which said node has access is functioning and if any disk is not functioning; the node creates a disk failure message for the disk not functioning for transfer to an adjacent node; wherein said adjacent node transfers said disk failure node to subsequent adjacent nodes until said cluster supervising processor receives said disk failure message; wherein upon receipt of multiple disk failure messages from multiple nodes for the disk not functioning, the cluster supervising processor declares a disk failure, updates the disk usage table, and reassigns all the transfer of video data files from a failing node to an active node (See paragraphs 0018, 0045 and 0056).

35. Referring to claim 36, Mangipudi discloses dynamically monitoring workload and availability of servers and additional servers being added easily and seamlessly to meet increases in traffic, this is interpreted as wherein a new node joins said cluster by the steps of: listening to said virtual multicast bus for a supervisor notification message from the present cluster supervising processor; posting on said virtual multicast bus a join request message providing a node identification, a network address for said node, and a disk access list for said node; updating by the present cluster supervising processor the cluster map and the cluster topology; and placing a new supervisor notification message upon said virtual multicast bus including said new node (See paragraphs 0018 and 0053).

36. Referring to claim 37, Mangipudi discloses dynamically monitoring workload and availability of servers and additional servers being added easily and seamlessly to meet increases in traffic, this is interpreted as wherein the new node joins said cluster further by the step of: ceasing posting on said virtual multicast bus said join request message (See paragraphs 0018 and 0053).

37. Referring to claim 41, Mangipudi teaches keeping track of availability sending heartbeat which contains server status, this is interpreted as wherein a node leaves a cluster by the steps: posting a leave message on said virtual multicast bus, said leave message containing the node identification and the network address for said node;

updating by the cluster supervising processor of the cluster map and the cluster topology; and posting on the virtual multicast bus the supervisor notification message with the updated cluster map and cluster topology (See paragraphs 0019 and 0056).

38. Referring to claim 42, Mangipudi teaches dynamically monitoring workload and availability of servers and determining server status, this is interpreted as wherein the node leaving the cluster ceases posting the leave message upon receipt of the supervisor notification message with the updated cluster map and cluster topology (See paragraphs 0018 and 0056).

39. Referring to claim 43, Mangipudi discloses a secondary server taking over for the primary host router server, this is interpreted as wherein if the node leaving the cluster is the cluster supervising processor, the node of the cluster of the priority list then becomes the cluster supervising processor (See paragraph 0041).

Allowable Subject Matter

40. Claims 16-18, 22, 38-40, and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

41. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following are closely related cluster systems.

U.S. Patent 6,085,238, to Yuasa et al.

U.S. Patent App. Pub. 2002/0174207 to Battou

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Manoskey whose telephone number is (571) 272-3648. The examiner can normally be reached on Mon.-Fri. (7:30am to 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JDM
January 3, 2007